

**UNITED STATES DEPARTMENT OF COMMERCE****Patent and Trademark Office**

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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. |
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09/009, 455 01/20/98 MILLS

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EXAMINER

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LANGE, W

| ART UNIT | PAPER NUMBER |
|----------|--------------|
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1754

*8*

DATE MAILED:

07/23/99

**Please find below and/or attached an Office communication concerning this application or proceeding.**

**Commissioner of Patents and Trademarks**

## Office Action Summary

|                 |        |                |       |
|-----------------|--------|----------------|-------|
| Application No. | 009955 | Applicant(s)   | Mills |
| Examiner        | Lange  | Group Art Unit | 1754  |

—The MAILING DATE of this communication appears on the cover sheet beneath the correspondence address—

### Period for Response

A SHORTENED STATUTORY PERIOD FOR RESPONSE IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a response be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for response specified above is less than thirty (30) days, a response within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for response is specified above, such period shall, by default, expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to respond within the set or extended period for response will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).

### Status

Responsive to communication(s) filed on \_\_\_\_\_.

This action is FINAL.

Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11; 453 O.G. 213.

### Disposition of Claims

Claim(s) 1 and 2 is/are pending in the application.

Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.

Claim(s) \_\_\_\_\_ is/are allowed.

Claim(s) 1 and 2 is/are rejected.

Claim(s) \_\_\_\_\_ is/are objected to.

Claim(s) \_\_\_\_\_ are subject to restriction or election requirement.

### Application Papers

See the attached Notice of Draftsperson's Patent Drawing Review, PTO-948.

The proposed drawing correction, filed on \_\_\_\_\_ is  approved  disapproved.

The drawing(s) filed on \_\_\_\_\_ is/are objected to by the Examiner.

The specification is objected to by the Examiner.

The oath or declaration is objected to by the Examiner.

### Priority under 35 U.S.C. § 119 (a)-(d)

Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d).

All  Some\*  None of the CERTIFIED copies of the priority documents have been received.

received in Application No. (Series Code/Serial Number) \_\_\_\_\_.

received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

\*Certified copies not received: \_\_\_\_\_.

### Attachment(s)

Information Disclosure Statement(s), PTO-1449, Paper No(s). 7  Interview Summary, PTO-413

Notice of References Cited, PTO-892  Notice of Informal Patent Application, PTO-152

Notice of Draftsperson's Patent Drawing Review, PTO-948  Other \_\_\_\_\_

## Office Action Summary

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The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless --

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1 and 2 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Long et al. or Taschek et al. or Jung et al. No distinction is seen between the processes disclosed by Long et al., Taschek et al. or Jung et al., and that recited in applicant's claims. Long et al., Taschek et al. and Jung et al. all disclose reaction of a deuterium hydride ion with water to produce molecular hydrogen. (See, for example, column 1, lines 25 and 26 of Jung et al.; column 1, lines 33-39 of Taschek et al.; and column 2, lines 8-34 of Long et al.) The water or steam

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employed as a reactant in the processes of Jung et al., Taschek et al. and Long et al. would constitute a proton. The molecular hydrogen produced according to the processes would inherently have a binding energy of about 8.928 eV, since applicant's specification provides evidence that the reaction between a proton and a deuterium hydride results in the production of molecular hydrogen having a first binding energy of about 8.928 eV.

Claims 1 and 2 are rejected under 35 U.S.C. 103(a) as being unpatentable over Long et al. or Taschek et al. in view of Jung et al. Long et al. and Taschek et al. both disclose the reaction of a deuterium hydride ion with water to produce molecular hydrogen. (See, for example, column 1, lines 33-39 of Taschek et al., and column 2, lines 8-34 of Long et al.) The difference between the processes of Long et al. and Taschek et al., and that recited in applicant's claims, is that the processes of Long et al. and Taschek et al. would not necessarily result in the production of molecular hydrogen having a first binding energy of about 8.928 eV. Jung et al. establishes the equivalence between water and acids in the production of pure hydrogen gas by decomposition of hydrides at column 1, lines 20 and 21. It would be prima facie obvious from Jung et al. to modify the process of either Long et al. or Taschek et al. by substituting an acid for the water disclosed in the processes of Long et al. and Taschek

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et al., since Jung et al. establishes the equivalence between the use of water and acids in the production of hydrogen gas by decomposition of hydrides. It would be obvious that the acid of Jung et al. could be substituted for the steam or water of Long et al. or Taschek et al., since the processes of Long et al., Taschek et al. and Jung et al. are analogous in a sense that they are all directed to the reaction of a deuterium hydride ion with a proton to produce molecular hydrogen. The molecular hydrogen produced by such a process would inherently have a first binding energy of about 8.928 eV, since applicant's specification provides evidence in the paragraph bridging pages 12 and 13 that the reaction between a deuterium hydride with a proton will produce a molecular hydrogen having a first binding energy of about 8.928 eV, when the proton is supplied by an acid. See particularly page 12, lines 31 and 32 of applicant's specification.

Applicant is invited to amend the specification to provide the Abstract after the claims, rather than before.

Any inquiry concerning this communication should be directed to Wayne A. Langel at telephone number (703) 308-0248.

WAL:cdc

July 22, 1999

*Wayne A. Langel*  
WAYNE LANGEL  
PRIMARY EXAMINER  
GROUP 110